TNReady Integrated Math I
Blueprint

Clusters on Part I	# of Items in Part I	% of Part I	Additional Clusters on Part II (All Part I Clusters will also be assessed on Part II)	# of Items in Part II	% of Part II	% of Test
Structure and interpretation of expressions and quantities • Use units to solve problems • Interpret the structure of expressions • Write expressions in equivalent forms	2–4	12–15%	No additional clusters	2–3	5–8%	8–10%
Create equations that describe numbers or relationships	3–5	13–21%	No additional clusters	3–6	8–18%	13–16%
Reason with equations and inequalities • Solve equations and inequalities	1–3	4–8%	Reason with equations and inequalities • Solve systems of equations • Represent and solve equations and inequalities graphically	7–10	21–27%	16–18%
Interpreting and building functions • Understand the concept of a function and use function notation • Interpret functions that arise in applications in terms of the context • Build a function that models a relationship between two quantities	6–8	25–35%	Interpreting and building functions • Analyze functions using different representations	6–9	18–26%	20–25%
Construct and compare linear, quadratic and exponential functions • Construct and compare linear, quadratic, and exponential models and solve problems	2–4	9–17%	Construct and compare linear, quadratic and exponential functions • Interpret expressions for functions in terms of the situation they model	3–5	9–14%	10–13%
Geometry: Congruence • Experiment with transformations in the plane • Understand congruence in terms of rigid motions • Prove geometric theorems	4–5	17–21%	No additional clusters	4–5	11–15%	15–18%
No content from these clusters will be assessed on Part I	0	0%	Interpreting categorical and quantitative data • Summarize, represent, and interpret data on a single count or measurement variable • Summarize, represent, and interpret data on two categorical and quantitative variables • Interpret linear models	4–6	12–16%	7–10%
Total	23–24	100%	Total	34–37	100%	100%

Reading the Revisions: The totals on the blueprints released in Spring 2015 were estimated totals of the test forms. The revised blueprints reflect actual totals for the test forms. The Form Summaries line provides the range of actual form totals. There are multiple forms per grade.

Revised 10/1/15

Part I – Calculator Allowed

Cluster	Standards		# of Items
Structure and interpretation of expressions and quantities	N-Q – Reason quantitatively and use units to solve problems	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	2–4
		Define appropriate quantities for the purpose of descriptive modeling.	
		Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	
	A-SSE.A – Interpret the structure of expressions	Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity.	
	A-SSE.B – Write expressions in equivalent forms to solve problems	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. c. Use the properties of exponents to transform expressions for exponential functions.	
Create equations that describe numbers or relationships	A-CED – Create equations that describe numbers or relationships	Create equations and inequalities in one variable and use them to solve problems.	3–5
		Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	
		Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	
		Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	
Reason with equations and inequalities	A-REI.B – Solve equations and inequalities in one variable	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	1–3
Interpreting and building functions	F-IF.A – Understand the concept of a function and use function notation	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	6–8
		Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	
		Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	
	F-IF.B – Interpret functions that arise in applications in terms of context	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.	

	F-BF.A – Build a function that models a relationship between two quantities	Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	
		Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	
		Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	
		Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	
Construct and compare linear, quadratic and exponential functions	F-LE.A – Construct and compare linear, quadratic, and exponential models and solve problems	Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	2–4
		Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	
		Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	
Geometry: Congruence	G-CO.A – Experiment with transformations in the plane	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	4–5
		Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	
		Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	
		Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	
		Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	
	G.CO.B – Understand congruence in terms of rigid motions	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	
		Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	

	G.CO.C- Prove geometric theorems	Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	
		Prove theorems about lines and angles.	
		Prove theorems about triangles.	
		Prove theorems about parallelograms.	

Part II – Calculator and Non-Calculator Portions

Cluster	Standards		# of Items
Structure and operations with expressions and quantities	N-Q – Reason quantitatively and use units to solve problems	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	2–3
		Define appropriate quantities for the purpose of descriptive modeling.	
		Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	
	A-SSE.A – Interpret the structure of expressions	Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts	
	A-SSE.B – Write expressions in equivalent forms to solve problems	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. c. Use the properties of exponents to transform expressions for exponential functions.	
Create equations that describe numbers or relationships	A-CED – Create equations that describe numbers or relationships	Create equations and inequalities in one variable and use them to solve problems.	3–6
		Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	
		Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	
		Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	
Reason with equations and inequalities	A.REI.B – Solve equations and inequalities in one variable	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	7–10
	A-REI.C – Solve systems of equations	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	
		Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	
	A-REI.D – Represent and solve equations and inequalities graphically	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	
		Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	

		Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	
Interpreting and building functions	F-IF.A – Understand the concept of a function and use function notation	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	6–9
		Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	
		Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	
	F-IF.B – Interpret functions that arise in applications in terms of context	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.	
		Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	
		Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	
	F-IF.C – Analyze functions using different representations	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima.	
		Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	
	F-BF.A – Build a function that models a relationship between two quantities	Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	
		Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	
Construct and compare linear, quadratic and exponential functions	F-LE.A – Construct and compare linear, quadratic, and exponential models and solve problems	Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	3–5

		Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	
		Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	
	F-LE.B – Interpret expressions for functions in terms of the situation they model	Interpret the parameters in a linear or exponential function in terms of a context.	
Geometry: Congruence	G-CO.A – Experiment with transformations in the plane	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	4–5
		Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	
		Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	
		Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	
		Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	
	G.CO.B – Understand congruence in terms of rigid motions	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	
		Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	
		Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	
	G.CO.C – Prove geometric theorems	Prove theorems about lines and angles.	
		Prove theorems about triangles.	
		Prove theorems about parallelograms.	

Interpreting categorical and quantitative data	S-ID.A – Summarize, represent, and interpret data on a single count or measurement variable	Represent data with plots on the real number line (dot plots, histograms, and box plots).	4–6
		Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	
		Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	
	S-ID.B – Summarize, represent, and interpret data on two categorical and quantitative variables	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	
		Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. b. Fit a linear function for a scatter plot that suggests a linear association.	
	S-ID.C – Interpret linear models	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	
		Compute (using technology) and interpret the correlation coefficient of a linear fit.	
		Distinguish between correlation and causation.	

Overall Blueprint (Includes Part I and Part II)

Cluster	Standards		# of Items
Structure and operations with expressions and quantities	N-Q – Reason quantitatively and use units to solve problems	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	5–7
		Define appropriate quantities for the purpose of descriptive modeling.	
		Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	
	A-SSE.A – Interpret the structure of expressions	Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity.	
	A-SSE.B – Write expressions in equivalent forms to solve problems	Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. c. Use the properties of exponents to transform expressions for exponential functions.	
Create equations that describe numbers or relationships	A-CED – Create equations that describe numbers or relationships	Create equations and inequalities in one variable and use them to solve problems.	8–10
		Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	
		Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.	
		Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	
Reason with equations and inequalities	A-REI.B – Solve equations and inequalities in one variable	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	9–11
	A-REI.C – Solve systems of equations	Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	
		Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	
	A-REI.D – Represent and solve equations and inequalities graphically	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	

		Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	
		Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	
Interpreting and building functions	F-IF.A – Understand the concept of a function and use function notation	Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. The graph of f is the graph of the equation $y = f(x)$.	14–15
		Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	
		Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	
	F-IF.B – Interpret functions that arise in applications in terms of context	For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.	
		Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	
		Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	
	F-IF.C – Analyze functions using different representations	Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima.	
		Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	
	F-BF.A – Build a function that models a relationship between two quantities	Write a function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	
		Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	
Construct and compare linear, quadratic and exponential functions	F-LE.A – Construct and compare linear, quadratic, and exponential models and solve problems	Distinguish between situations that can be modeled with linear functions and with exponential functions. b. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. c. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. d. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	6–8

		Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	
		Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	
	F-LE.B – Interpret expressions for functions in terms of the situation they model	Interpret the parameters in a linear or exponential function in terms of a context.	
Geometry: Congruence	G-CO.A – Experiment with transformations in the plane	Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	8–10
		Represent transformations in the plane using, e.g., transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	
		Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	
		Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	
		Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	
	G-CO.B – Understand congruence in terms of rigid motions	Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	
		Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	
		Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	
	G-CO.C – Prove geometric theorems	Prove theorems about lines and angles.	
		Prove theorems about triangles.	
		Prove theorems about parallelograms.	
Interpreting categorical and quantitative data	S-ID.A – Summarize, represent, and interpret data on a single count or measurement variable	Represent data with plots on the real number line (dot plots, histograms, and box plots).	4–6

		Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	
		Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	
	S-ID.B – Summarize, represent, and interpret data on two categorical and quantitative variables	Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	
		Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. b. Fit a linear function for a scatter plot that suggests a linear association.	
	S-ID.C – Interpret linear models	Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	
		Compute (using technology) and interpret the correlation coefficient of a linear fit.	
		Distinguish between correlation and causation.	